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Core curriculum of shoulder and elbow surgery: the proposal from the European Society for Surgery of the Shoulder and Elbow

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Background: Subspecialization in orthopedic surgery has become the standard approach due to the expanding body of medical knowledge. Shoulder and elbow surgery is a growing subspecialty, but it still faces challenges with undefined training standards, unclear competency levels, and a lack of delineated professional responsibilities. To address this, the European Society for Surgery of the Shoulder and Elbow-societe european chirurgie epaule et coude (ESSSE-SECEC) aims to create a core curriculum (CC) to standardize knowledge and skills within this field.

Methods: The ESSSE-SECEC Qualification Committee developed a CC through a task force established in 2022. The curriculum is divided into 2 major sections, shoulder and elbow, further categorized into 5 areas: Basic Science, Diagnosis, Pathology, Nonoperative Treatment, and Surgical Treatment. The content was developed, reviewed, and approved by leading experts within the Society.

Results: The CC contains 72 headings and 259 specific subjects, encompassing key areas of knowledge, practical skills, and behavioral attitudes necessary for competence in shoulder and elbow surgery, offering a detailed framework for the subspecialty.

Conclusion: The ESSSE-SECEC CC establishes a foundational standard for shoulder and elbow surgeons. It provides a clear framework for knowledge and competency, supporting the future development of training and assessment tools within the subspecialty. Additionally, it aims to solidify the subspecialty's identity and serve as a key tool for competency assessments within ESSSE-SECEC and beyond.

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John Charnley introduced the concept of subspecialization to the field of orthopedic surgery in the 1960s. Since then, it has become the standard for training. This is important for both surgeons, who, due to an exponentially growing body of evidence,

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cannot maintain expertise in every aspect of their specialty, and patients, who benefit from the more comprehensive care provided by an advanced subspecialist compared to a general practitioner.[5,7] In fact, Emery et al in 2012, Horst et al in 2013, and Cannada et al in 2015 demonstrated that more than 90% of orthopedic surgeons pursue additional subspecialty training after residency, compared with approximately 60% in the 1990s.[2,3,5]

Shoulder and elbow surgery is an expanding subspecialty within orthopedic surgery, and in line with this trend, several strong fellowship programs have emerged. However, this increase in training opportunities has not been accompanied by a clear delineation of responsibilities and standards for shoulder and elbow surgeons. Concerns persist regarding the standard of knowledge and professional competence of surgeons, significant variation in training systems and assessments, and lack of verification that acceptable standards of competence have been achieved.[6,7]

European legislation plays a critical role in regulating Continuing Professional Development (CPD) to ensure the mobility of the medical workforce across member states, as outlined in Directive 2013/55/EU.[8] The directive mandates that Member States promote CPD to maintain professional competence and safe medical practices.[8] European Federation of Orthopaedics and Traumatology (EFORT), empowered by European authorities, has been entrusted with a significant responsibility to facilitate and oversee Continuing Medical Education and CPD within the field of orthopedics and traumatology.[8] Recognizing this, societe european chirurgie epaule et coude (SECEC) seeks to assume a similar role in advancing education and standards, specifically within the shoulder and elbow specialty across Europe.

As a Scientific Society, we aim to clarify the responsibilities and boundaries in shoulder and elbow surgery. Following the examples of other societies,[1] we strive to establish a core curriculum (CC) for shoulder and elbow surgery. This CC is intended to guide training for both trainees and trainers and to contribute to future guidelines for assessing competency from our Society as well as other international or national societies.

A CC of shoulder and elbow surgery is necessary to establish a foundational knowledge and skills base and define the minimal level of expertise expected. This will help to delineate the boundaries and responsibilities of shoulder and elbow surgeons.

In this study, on behalf of the European Society for Surgery of the Shoulder and Elbow (ESSSE-SECEC), we present the development process and creation of a CC for shoulder and elbow surgery.

Materials and methods

To develop the CC in shoulder and elbow surgery, the ESSSE-SECEC Qualification Committee formed a task force in 2022. This task force used the work of the Turkish Spine Society[1] as a model. The task force, consisting of 10 physicians specialized in shoulder and elbow surgery, divided the CC into 2 major parts: (1) shoulder and (2) elbow.

For each part, the broad base of knowledge and skills was divided into 5 modules:

- Basic Science
- Diagnosis
- Pathology
- Nonoperative Treatment
- Surgical Treatment

Each module was further divided into subject headings according to the EFORT proposal.

For each heading, the task force defined the fields of competency, classified as knowledge (theoretical understanding), skills (practical abilities), and attitudes (desired behavioral patterns). Each heading was assigned to a task force member for content development. These were compiled and analyzed by the task force before being reviewed by the ESSSE-SECEC Executive Committee. Following the incorporation of feedback, the CC was reviewed and approved by Dr. Gilles Walch.

Results

The shoulder module was divided into 36 headings: 5 for Basic Science, 4 for Diagnosis, 13 for Pathology, 5 for Nonoperative Treatment, and 9 for Surgical Treatment. These headings were further divided into 135 specific subjects: 16 for Basic Science, 15 for Diagnosis, 51 for Pathology, 15 for Nonoperative Treatment, and 38 for Surgical Treatment.

The elbow modules were divided into 36 headings: 5 for Basic Science, 4 for Diagnosis, 13 for Pathology, 5 for Nonoperative Treatment, and 9 for Surgical Treatment. These headings were further divided into 124 specific subjects: 14 for Basic Science, 15 for Diagnosis, 43 for Pathology, 15 for Nonoperative Treatment, and 37 for Surgical Treatment. The developed CC is attached in Appendices 2 and 3. An index is attached in Appendix 1.

Discussion

This CC aims to advance knowledge in the shoulder and elbow field and improve the skills of its practitioners. By providing guidance, the CC will ensure that future shoulder and elbow surgeons have a curriculum that guarantees a basis of safety and competency according to ESSSE-SECEC standards. We aim to promote the development of essential competencies and improve overall clinical performance in this specialty. Competencies encompass specific knowledge, skills, and attitudes necessary for surgeons to perform effectively and meet professional standards.

In alignment with European legislation, EFORT has been granted the authority to oversee Continuing Medical Education/CPD in orthopedics and traumatology.[8] SECEC aims to take on a similar role, focusing on establishing and upholding educational standards within the shoulder and elbow specialty. By actively contributing to the advancement of CPD, SECEC seeks to ensure that professionals remain at the forefront of medical knowledge and practices, ultimately enhancing patient outcomes in this field.

This article presents the ESSSE-SECEC CC for shoulder and elbow surgery along with the methodology used in its development. This CC was developed by a task force appointed by the ESSSE-SECEC Qualification Committee specifically for this purpose.

The CC was divided into 5 areas: Basic Science, Diagnosis, Pathology, Nonoperative Treatment, and Surgical Treatment, with subsequent divisions into 72 headings and 259 specific subjects. Levels of knowledge, skills, and attitudes were defined for each subject.

This CC is unique compared to those from other shoulder and elbow societies, such as the American Shoulder and Elbow Surgeons, and is based on the methodology of the British Orthopaedic Association,[4] which was later revised by the Turkish Spine Society when creating their CC in spinal surgery.[1] The foundation was based on the structure provided by EFORT.

Unlike other CCs,[5] we chose not to define entry and exit levels for knowledge, skills, and attitudes, as these can be arbitrary when evaluating competencies. If evaluation and grading are necessary, a separate tool, such as an examination, will be created for that purpose.

We acknowledge the limitations of this CC, as it represents the view of the task force appointed by the ESSSE-SECEC Qualification Committee. However, this committee included expert surgeons and

was open to extensive discussion. Additionally, it is challenging to thoroughly validate the methodology and the CC itself in the near future. Therefore, some adjustments may be needed during its application.

This ESSSE-SECEC proposal should be evaluated by an oversight task force created by ESSSE-SECEC for this purpose. Adaptations and changes can be made in the future if deemed necessary. This should be seen as the beginning of a dynamic process where future needs will guide re-evaluation and modifications.

With this CC, we aim to provide a foundational base and standard identity for shoulder and elbow surgeons, help define the necessary competencies for establishing shoulder and elbow surgery as a subspecialty in orthopedics, and serve as a tool for evaluating future applicants to the degree of shoulder and elbow surgeon recognized by ESSSE-SECEC.

Conclusion

The ESSSE-SECEC CC establishes a comprehensive and structured framework for shoulder and elbow surgery training, addressing the need for standardized competencies in this growing subspecialty. By outlining essential knowledge, skills, and attitudes, the curriculum supports both trainees and trainers, contributing to an effective and high-quality clinical practice. Although future refinements may be necessary, this curriculum serves as a foundational tool for the development of shoulder and elbow surgeons, reinforcing the identity of the subspecialty and ensuring adherence to high professional standards.

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Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jseint.2024.10.010.

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